

Supplemental Data

A Locus on Chromosome 1p36 Is Associated with Thyrotropin and Thyroid Function as Identified by Genome-wide Association Study

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Figure S1. Quantile-quantile plot of chi-squared values for serum TSH in the TwinsUK discovery cohort

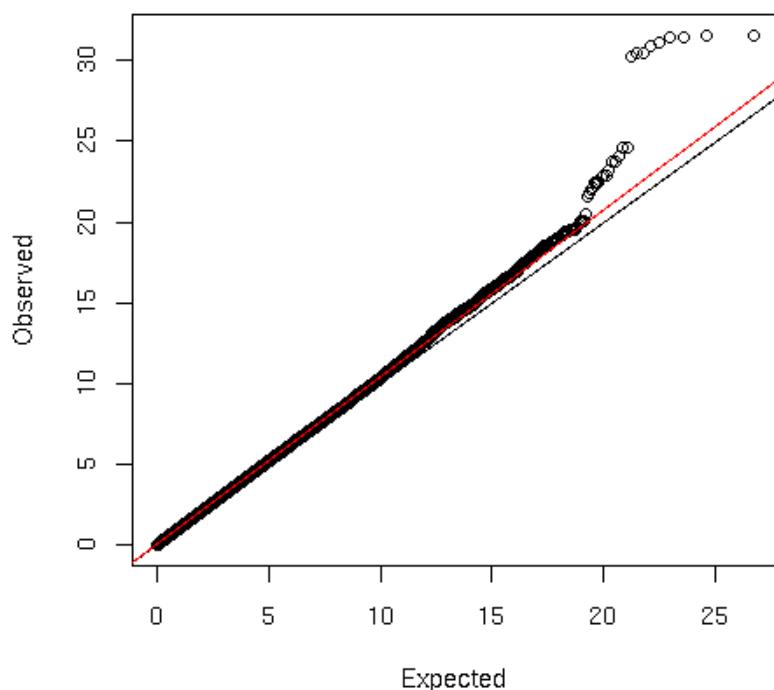


Figure S2. Quantile-quantile plot of chi-squared values for free T4 in the TwinsUK discovery cohort

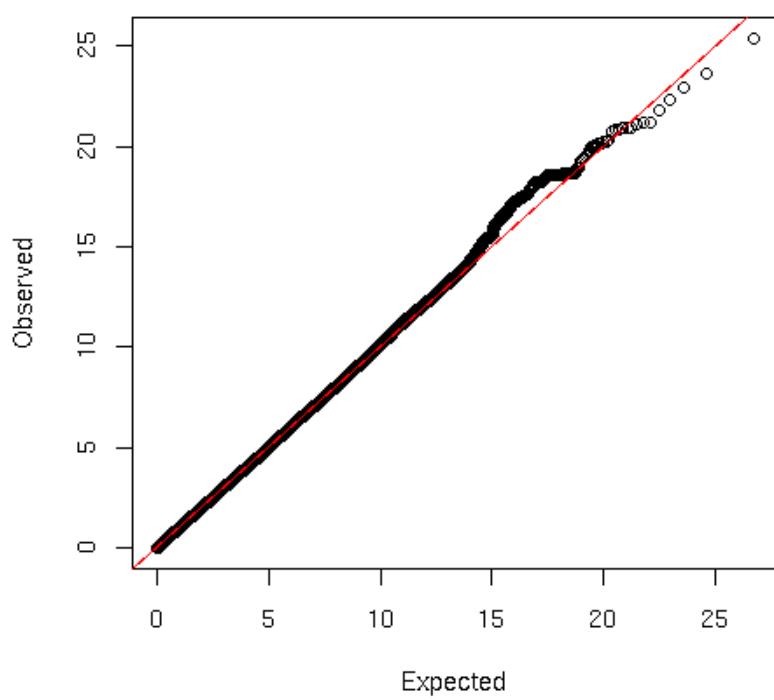


Figure S3. Quantile-quantile plot of chi-squared values for free T3 in the TwinsUK discovery cohort

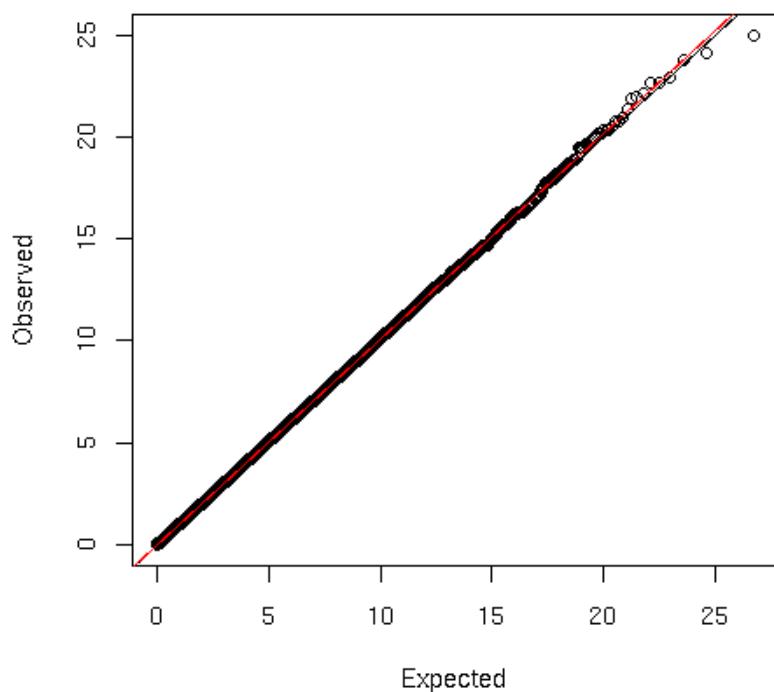


Table S1. Most significant associations for TSH, free T4 and free T3 from GWAS on Twins UK.

SNP	Chr	position	allele s	MAF	beta	se	P	Nearest gene
TSH								
rs10917469	1	19716163	A/G	0.16	-0.163	0.030	3.2×10^{-8}	CAPZB (30kb)
rs16822442	1	19700557	A/G	0.18	-0.151	0.027	3.3×10^{-8}	CAPZB (30kb)
rs10799824	1	19713761	G/A	0.16	-0.163	0.030	3.5×10^{-8}	CAPZB (30kb)
rs12138950	1	19711702	A/C	0.16	-0.163	0.030	3.5×10^{-8}	CAPZB (30kb)
rs4394682	1	19710124	A/G	0.17	-0.152	0.028	4.0×10^{-8}	CAPZB (30kb)
rs873095	1	19695916	G/A	0.18	-0.150	0.027	4.7×10^{-8}	CAPZB (30kb)
rs12136721	1	19705574	C/G	0.17	-0.151	0.028	5.7×10^{-8}	CAPZB (30kb)
rs11806434	1	19705024	G/A	0.17	-0.150	0.028	5.7×10^{-8}	CAPZB (30kb)
rs11807599	1	19704526	C/T	0.19	-0.141	0.026	6.0×10^{-8}	CAPZB (30kb)
rs13383344	2	240901321	A/G	0.45	-0.067	0.014	1.1×10^{-6}	OTOS (170kb), GPC1 (120kb)
rs2352821	2	240910330	C/T	0.48	0.064	0.013	1.2×10^{-6}	OTOS (170kb), GPC1 (120kb)
rs12695016	2	240898782	A/G	0.44	-0.067	0.014	1.5×10^{-6}	OTOS (170kb), GPC1 (120kb)
rs3935911	2	240896430	C/T	0.44	-0.067	0.014	1.7×10^{-6}	OTOS (170kb), GPC1 (120kb)
rs1527680	7	94372822	A/G	0.13	-0.151	0.032	1.9×10^{-6}	PPP1R9A
rs6030171	20	40427508	T/C	0.31	0.089	0.019	1.9×10^{-6}	PTPRT
rs2352816	2	240904808	G/A	0.44	-0.066	0.014	2.4×10^{-6}	OTOS (170kb), GPC1 (120kb)
rs4531036	8	125273902	C/G	0.29	0.094	0.020	2.6×10^{-6}	-
rs4676361	2	240907832	A/C	0.43	-0.067	0.014	2.8×10^{-6}	OTOS (170kb), GPC1 (120kb)
rs4242363	8	125275684	C/T	0.28	0.093	0.020	3.2×10^{-6}	-
rs9374564	6	116121301	C/T	0.21	-0.111	0.024	3.2×10^{-6}	-
rs2352817	2	240905126	A/G	0.44	-0.064	0.014	3.4×10^{-6}	OTOS (170kb), GPC1 (120kb)
rs11723142	4	65194438	A/G	0.01	0.580	0.125	3.6×10^{-6}	-
rs1370596	2	133568314	T/C	0.46	0.063	0.014	3.7×10^{-6}	-
rs10231524	7	94365763	C/T	0.13	-0.147	0.032	4.4×10^{-6}	PPP1R9A
rs1437895	2	133569271	G/A	0.46	0.062	0.014	5.0×10^{-6}	-

free T4									
rs211811	7	109870908	G/A	0.14	-0.173	0.034	3.3×10^{-7}	<i>IMMP2L</i> (220kb)	
rs1908679	12	67764305	C/G	0.41	-0.083	0.017	8.0×10^{-7}	<i>CPSF6</i> (160kb)	
rs13401647	2	204765913	T/C	0.13	0.174	0.035	9.6×10^{-7}	<i>ICOS</i> (220kb)	
rs10878908	12	67756594	A/G	0.43	-0.076	0.016	1.2×10^{-6}	<i>CPSF6</i> (160kb)	
rs16840880	2	204761442	C/T	0.13	0.172	0.035	1.2×10^{-6}	<i>ICOS</i> (220kb)	
rs402946	7	109882292	G/T	0.17	-0.137	0.029	2.3×10^{-6}	<i>IMMP2L</i> (220kb)	
rs416050	7	109882447	A/G	0.17	-0.137	0.029	2.3×10^{-6}	<i>IMMP2L</i> (220kb)	
rs211808	7	109876557	C/A	0.17	-0.137	0.029	2.4×10^{-6}	<i>IMMP2L</i> (220kb)	
rs169833	7	109865785	A/G	0.17	-0.136	0.029	2.6×10^{-6}	<i>IMMP2L</i> (220kb)	
rs211797	7	109865473	G/C	0.17	-0.136	0.029	2.6×10^{-6}	<i>IMMP2L</i> (220kb)	
rs211803	7	109878984	G/T	0.17	-0.136	0.029	2.7×10^{-6}	<i>IMMP2L</i> (220kb)	
rs211804	7	109878696	C/A	0.18	-0.137	0.029	2.7×10^{-6}	<i>IMMP2L</i> (220kb)	
rs211812	7	109870288	G/C	0.17	-0.136	0.029	2.8×10^{-6}	<i>IMMP2L</i> (220kb)	
rs211810	7	109875760	G/T	0.17	-0.135	0.029	2.9×10^{-6}	<i>IMMP2L</i> (220kb)	
rs398554	7	109888839	A/G	0.17	-0.135	0.029	3.8×10^{-6}	<i>IMMP2L</i> (220kb)	
rs442451	7	109888782	G/A	0.17	-0.135	0.029	3.8×10^{-6}	<i>IMMP2L</i> (220kb)	
rs388129	7	109893743	C/G	0.17	-0.134	0.029	3.9×10^{-6}	<i>IMMP2L</i> (220kb)	
rs10226721	7	109894584	A/G	0.17	-0.134	0.029	4.1×10^{-6}	<i>IMMP2L</i> (220kb)	
rs409006	7	109891686	G/A	0.17	-0.134	0.029	4.1×10^{-6}	<i>IMMP2L</i> (220kb)	
rs367898	7	109884276	G/C	0.17	-0.133	0.029	4.5×10^{-6}	<i>IMMP2L</i> (220kb)	
rs396911	7	109883921	G/A	0.17	-0.133	0.029	4.5×10^{-6}	<i>IMMP2L</i> (220kb)	
rs7285004	22	43153364	T/C	0.37	-0.082	0.018	4.8×10^{-6}	<i>LDOC1L</i> (110kb), <i>PARVG</i> (210kb)	
free T3									
rs10493251	1	58536669	T/C	0.24	-0.124	0.025	5.8×10^{-7}	<i>DAB1</i> (50kb), <i>OMA1</i> (190kb)	
rs11576201	1	58529236	A/G	0.24	-0.122	0.025	9.0×10^{-7}	<i>DAB1</i> (50kb), <i>OMA1</i> (190kb)	
rs17117233	1	58515742	T/C	0.23	-0.119	0.025	1.7×10^{-6}	<i>DAB1</i> (50kb), <i>OMA1</i> (190kb)	

The Table shows all association signals for which $P < 5.0 \times 10^{-6}$. Abbreviations: Chr – chromosome, MAF – minor allele frequency, beta – effect size coefficient, se – standard error of beta. Genes listed are those within 250 kb of SNP, approximate distance from SNP in brackets if SNP not located within gene.

Table S2. SNPs selected from the GWAS of TwinsUK for attempted replication

Genotypes	Discovery cohort – Twins UK			Replication cohort - Busselton		
	beta	SE	P	beta	SE	P
TSH						
rs10917469 AA AG GG	-0.16	0.03	3.2×10^{-8}	-0.23	0.06	2.0×10^{-4}
rs13383344 AA AG GG	-0.07	0.01	1.1×10^{-6}	-0.01	0.04	0.82
rs1527680 AA AG GG	-0.15	0.03	1.9×10^{-6}	-0.01	0.07	0.83
rs6030171 CC CT TT	0.09	0.02	1.9×10^{-6}	0.01	0.05	0.83
FT4						
rs211811 CC CT TT	-0.17	0.03	3.3×10^{-7}	-0.06	0.06	0.34
rs1908679 CC CG GG	-0.08	0.02	8.0×10^{-7}	-4.5×10^{-3}	0.04	0.92
rs7285004 CC TC TT	-0.08	0.02	4.8×10^{-6}	0.01	0.05	0.82
FT3						
rs10493251 AA GA GG	-0.12	0.03	5.8×10^{-7}	0.09	0.05	0.08

Adjusted for covariates: TPO antibody status, age, sex, BMI